



Physical Test Solutions

Innovative Solutions in Material Test Equipment

Rockwell and Brinell Hardness Testers



ROCKWELL & BRINELL
ROCKWELL & BRINELL



Rockwell Hardness Testers

Physical Test Solutions (PTS) offers a complete line of hardness testers for Rockwell testing applications. Reliability and repeatability is a trait in all models including the basic analog model as well as the digital model. All testers are delivered with a standard set of accessories including hardness test blocs, anvils and penetrators.

THR-150D Digital Rockwell Hardness Tester

Model THR-150D digital Rockwell hardness tester has a large LCD screen. The operation panel uses the menu type structure with the following main functions: selection of Rockwell hardness scale, selection of plastic Rockwell hardness scale, various conversion guides between hardness values, storage of hardness test results and an RS-232 port. Settings and hardness error values can be modified through input by pressing keys.

Specifications

- Measuring range: 20-88HRA, 20-100HRB, 20-70HRC
- Test force: 588.4, 980.7, 1471N (60, 100, 150kgf)
- Conversion scales to Brinell and Vickers
- Maximum height of test piece: 175 mm
- Throat depth: 160 mm
- Dwell time: 0 – 60 seconds
- Dimensions: 520 x 240 x 700 mm
- Weight: approx. 60 kg

Standard Accessories

- Large flat anvil
- Small flat anvil
- Large V anvil
- Diamond penetrator
- 1/16" steel ball penetrator
- Rockwell test block: 5 pieces



200HR-150

Model 200HR-150 is a new stylish Rockwell hardness tester that combines elegant design with reliability at cost effective price.

Specifications

- Measuring range: 20-88HRA, 20-100HRB, 20-70HRC
- Test force: 588.4, 980.7, 1471N (60,100,150kgf)
- Maximum test specimen height: 200 mm
- Throat depth: 165 mm
- Dimensions: 522 x 300 x 700 mm
- Weight: approx. 85kg

Standard Accessories

- ✓ Diamond penetrators
- ✓ 1/16" steel ball penetrators
- ✓ Rockwell standardized test block: 5 pieces.
- ✓ Large flat anvil
- ✓ Small flat anvil



ERGOTEST DIGI 25



Automatic cycle digital readout hardness tester

Top of the Ergotest range are DIGI models, the most advanced among Galileo hardness testers of LTF production. The operative features of the new version have been greatly improved so as to reach even higher performances.

The following functions are all under microprocessor based electronics control: power supply; cycle drive; AC-to-DC conversion of the transducer measurement and processing according to ISO, ASTM and SAE standards; digital display of the Rockwell hardness value; selection of cycle variables (test type and dwell time); tolerance range for the "go / no go" function; display of the corresponding set values and of indentation depth; interfaces driving; self-diagnosis for rapid monitoring of the instrument electromagnetic and electronic components.

The operative interface to the instrument is simplified by a new interactive menu, which presents a backlight LCD display, provided with alphanumerical (8 lines x 16 characters) and graphic (128 x 4 pixels) readout as well as a new keyboard with 16 soft keys.

The measuring device consists of a differential linear transducer, allowing a resolution of 0.0001 mm, which brings to a final resolution of 0.1 Rockwell units. Load selection is by means of a handy-placed knob on the right side of the machine.

Test operation is automatic once the pre-loading effected by the operator has been confirmed by the appropriate signal.

The new software allows an automatic approximate conversion of the measured value to a different hardness scale or of resistance to tensile stress, calculation of statistical parameters, such as average value, standard deviation, max. and min. values and number of measurements. Besides, by means of the keyboard, it allows input of some parameters aimed at tests documentation (date, specimen No., batch No.).

The display mode of results, (i.e. single measurement, list of all effected measurements, table with all statistical parameters, measurement histogram, "historical diagram") as well as the data output mode by means of three different interfaces (i.e. Centronics parallel to the printer, RS232C serial to PC or Host Computer, along with a special one for output to PC by keyboard emulation) complete the upgrading of the instrument.

The model Ergotest DIGI 25 RS can carry out Rockwell standard and superficial testing as well as Brinell and Vickers indentations, using the appropriate indenters. The Ergotest DIGI 25 R does not allow to carry out Rockwell superficial tests.

The unit complies with ASTM E18, E140 and SAE J-417b.



TECHNICAL DATA:

- LCD display provided with practical, simple and quick use alphanumerical and graphic readout
- Resolution 0.1 Rockwell
- Load dwell time selection
- Guide choice of the configuration in the different measurement test
- Results compared with values as per Standards
- batch management with possibility of save/recall on the outside devices as USB- company network LAN
- Possibility to put in nominal value and tolerance
- Software for the calculation of statistical parameters, such as average value, standard deviation, max. and min. values and number of measurements with indication "out of tolerance", date, specimen No., batch No., histogram with indication of +/- 3 sigma, line graphic for the indication of the tests tendency.
- Data conversion into text format or Excel
- Software automatic updating by USB
- Automatic conversion of the value measured in a different hardness scale: Rockwell, Brinell, Knoop, Vickers and tensile strenght as per "Galileo tables" or ISO 18265
- Automatic correction of measurements on the cylindrical and spherical pieces as per ISO Standards
- Automatic test cycle with electronic check of the process
- Load choice through selector with electronic check of the correct selection
- Diagnosis and test menu
- Different languages selection
- Serial interface RS232 for WiFi printer Ethernet port for connection to LAN network or Host Computer
- USB Interface for data transfer
- Max. test specimen height 295 mm – throat depth 220 mm
- User manual
- Hardness conversion booklet
- Dust plastic cover
- ISO Standard S.I.T. certificate available as follows:
 - direct and indirect verification for standard Rockwell testing direct load verification for Brinell and Vickers testing(direct and indirect verification only if it is mounted the accessory 742032280 or 742032261)



Touch Screen Rockwell Hardness Testers

The PTS models MRD-600TS and MRD-600STS bring touch screen technology to the hardness testing community. The hardness testers come in Rockwell and Rockwell superficial versions. Loaded with standard features, the hardness testers combine ease of use with reliability.

Standard Features

- ▶ 15 Rockwell scales
- ▶ Hardness conversion HV, HB scales
- ▶ Menu operated touch screen with many functions such as GO/NG, conversion, total test force, date/time
- ▶ Shape correction
- ▶ Built-in printer shows values and statistics
- ▶ RS232 interface
- ▶ Accuracy, reliability and durability at extremely affordable price
- ▶ Rugged construction, excellent stiffness
- ▶ Accuracy conform EN-ISO 6508 and ASTM E-18 GB/T230.2
- ▶ Automatic test force selection in accordance with hardness scale
- ▶ Large working space accommodates larger specimen
- ▶ Wide range of standard delivery



Brinell Hardness Testers

Brinell hardness is commonly required for testing unquenched steels, cast iron, non-ferrous metals and soft bearing alloys. The **PTS** Brinell hardness testers offer accuracy, versatility, durability, and affordability. Brinell testers are available in bench and portable type configurations.

MODEL HB-3000B BRINELL HARDNESS TESTER

Feature & Use:

- Electronic reversing switch
- It's steady and reliable for testing of curved surface
- Precision conforms to GB/T 231.2, ISO 6506-2 and ASTM E10

Specifications:

- Measuring range: 8-650HBW
- Test force: 1838.8, 2415.8, 7355.3, 9807, 29421N (187.5, 250, 750, 1000, 3000kgf)
- Max. height of test piece: 230mm
- Depth of throat: 120mm
- Power supply: 220V AC or 110V AC, 50 or 60Hz
- Dimensions: 700 x 268 x 842mm
- Weight: approx. 210kg



THB-3000 and THB-3000D CLOSED LOOP DIGITAL BRINELL HARDNESS TESTERS

The **THB-3000** Electronic Brinell hardness tester features closed loop technology using a load cell to measure the load applied by a precision motor. The microprocessor controls the dwell time as well which can be selected on the touch panel by key.

Features and Specifications:

- Brinell Scales: HBW2.5/62.5, HBW2.5/187.5, HBW5/125, HBW5/750, HBW10/100, HBW10/250, HBW10/500, HBW10/1000, HBW10/1500, HBW10/3000
- Test Force: 62.5kgf (612.9N), 100kgf (980.7N), 125kgf (1226N), 187.5kgf (1839N), 250kgf (2452N), 500kgf (4903N), 750kgf (7355N), 1000kgf (9907N), 1500kgf (14710N), 3000kgf (29420N)
- Max Height of Specimen 230mm
- Min Measuring Unit 0.005mm
- Dwelling Time 0~60s
- Hardness test Range 8~650HBW
- Total Microscope Amplification: 20X
- Applicable standards: EN ISO6507, EN ISO6506, ASTM E-384, ASTM E-10-08, GB/T231.2, JJG150

The **THB-3000D** Electronic Brinell hardness tester is the latest development of the Brinell line that a high rate of optical measurement system with photoelectric sensors for automatic hardness readings. The unit features a large LCD display screen and has computer programming capabilities.

Features and Specifications:

- Brinell Scales: HBW2.5/62.5 HBW2.5/187.5 HBW5/125 HBW5/750 HBW10/100、HBW10/1500 HBW10/3000 HBW10/250 HBW10/500 HBW10/1000
- Test Force: 62.5kgf (612.9N), 100kgf (980.7N), 125kgf (1226N), 187.5kgf (1839N), 250kgf (2452N), 500kgf (4903N), 750kgf (7355N), 1000kgf (8907N), 1500kgf (14710N), 3000kgf (29420N)
- Convertible Scales HRA HRB HRC HRD HRF HV HK HBW HR15N HR30N HR45N HR15T HR30T HR45T
- Duration time 5~60s
- Hardness testing Range: 8~650HBW
- Indication of Hardness Value: LCD display, Printer Output, Inside Printer



Brinell High Volume Hardness Testers

HBM-3000B Gate Type Brinell Hardness Tester

Specifications:

- Measuring range: 32-450HBS
- Test force: 7.355, 9.807, 29.42KN (750, 1000, 3000kgf)
- Distance between penetrator and worktable: 10-1000 mm
- Distance between two vertical columns: 1350 mm
- Dimensions of worktable(L x W): 1500 x 1000 mm
- Power supply: 380V AC
- Dimensions: main machine 2000 x 1800 x 2180 mm
- control box 510 x 500 x 1450 mm
- Weight: main machine approx. 3000kg
- Control console: approximately 40kg



Automatic in-line High Pressure Gas Bottle Brinell Hardness Tester



This equipment may be used to determine the Brinell hardness of steel bottle after heat treatment. It can remove the oxidation-layer on the surface of work piece, finish the steps of loading, dwelling and unloading, catch indentation by a CCD system and display the Brinell hardness number. Above processes are all automatic. The measured Brinell hardness can also be converted to other different hardness scales. The specially designed software can be used for storage, statistic, edit, analysis of the testing data.

Features:

- Automatic hardness test, LCD digital display
- Hardness conversion between different hardness scales
- Precision conforms to GB/T 231.2, ISO 6506-2 and ASTM E10

Specifications:

- Measuring range: 96-650HBW
- Test force: 3000kgf
- Measuring speed: ≤ 120 seconds/point
- Work piece: Columned work piece (wall thickness 10-30mm, no limit for diameter & length).
- Place of measuring: Any positions on the outside surface
- Power supply: 380V/220V AC.



King Tester Portable Brinell Hardness Tester

The King portable instrument has a hydraulic system and the test force is applied by means of a handle. The test condition applies 3000kg test force on a 10mm carbide indenter. It can result in permanent indentations for re-inspection. The test condition meets the requirements of ISO 6506 and ASTM E110.

Main Technical Parameters

- Test Force: 3000kg (500kg, 750kg, 1000kg, and 1500kg optional)
- Indenter: Φ 10mm carbide ball indenter (Φ 5mm optional)
- Testing Range: 100-650HBW (extendable to 28-650HBW)
- Max. Specimen Height: 320mm
- Throat Depth: 100mm
- Accuracy: complies with ISO 6506
- Repeatability: complies with ISO 6506
- Net Weight: 13.8kg



Application:

- **On-site Testing:** It is a portable instrument suitable to use in the plant. It is easy to operate and convenient to carry. So it can be used to easily test large work pieces in any direction on site.
- **Permanent Indentation:** With 3000kg test force and 10mm ball indenter, the indentation can accurately reflect the true hardness of cast iron, cast steel, forged piece, and other materials with coarse grain. The permanent indentation can be re-inspected at any time after testing.
- **Real Result:** PHB-3000 has the same principle as the bench type Brinell hardness tester. So the result is totally different from the conversion value of other portable hardness testers (eg. Rebound type hardness tester).
- **Wide Testing Range:** PHB-3000 has various test forces and two different ball indenters in order to test different metals.

Standard Accessories

- Tester
- Handle
- Standard Brinell hardness block
- 20X reading microscope (with LED light)
- V anvil
- Flat anvil
- Dome anvil
- Φ 10mm spare carbide ball indenter

DIGITAL BRINELL MICROSCOPE AND SOFTWARE SYSTEMS

DIGITAL BRINELL MICROSCOPES

PTS has a complete line of portable Brinell microscope systems to meet the customer demands. The PTS digital Brinell Microscopes can be used with any Brinell hardness tester. As an independent measurement system, it can measure the Brinell indentation accurately, quickly, reliably and is portable. The microscope uses a CCD camera to capture the indentation image. PTS has three models to choose from:



- Brimatic for the budget oriented requirements.
- The Lynx turn key system.
- The new Falcon system.

The Brimatic system includes a CD ROM, a USB key, software and a microscope with CMOS camera.

The Lynx system includes:

- A notebook or desk top PC
- 1 microscope (LINX type or installed on hardness tester)
- 2 remote controls
- Dedicated hardware and software.
- 4 m camera connection armored cable
- 2 m camera connection cable
- 1 test block with 5 indentations



The BRI-VBM Tablet System is a cutting edge integrated devise that introduces a new concept to Brinell microscopy with the following features:

- Measure in manual or automatic method
- Instant value of measure with conversion in HRC
- Save all the pictures
- Import and export the pictures
- Electronics ZOOM for best measuring
- Easy service and calibration instrument
- Test report with statistic and pictures
- Runs on WINDOWS 8



Universal Hardness Testers

ETD-25R-U Ergotest Digital Universal

The Ergotest universal hardness tester combines automatic Rockwell tester with digital readout with a digital measuring device for Brinell and Vickers indentations. The frame specifications are similar to those of the DIGI 25 RS, except for the fact that the Ergotest digital universal does not include the Rockwell superficial scale.



Scales

- Standard Rockwell tests with loads: 150-100-60 kgf
- Brinell indentations with load: 30 kgf
- Vickers indentations with loads: 100-60-30 kgf

DIGITAL MEASURING DEVICE for BRINELL and VICKERS

The kit allows the digital measure of indentations generated with the Brinell or Vickers method by a Rockwell Galileo hardness tester, model Ergotest. Each Rockwell measurement can be processed by the kit too, typing each value manually on the keyboard. The kit can be certificated by a SIT Centre, on request, as HB-HV indentation measure device. It is constituted as follows:

ELECTRONIC CONSOLE for data elaboration

The console, separated from the instrument, is used to set up of each test to be performed, to manage measure cycle of Vickers and Brinell indentations and to elaborate Rockwell – Vickers – Brinell hardness values. The device performs too:

- * Backlight LCD display, provided with alphanumerical (8 lines x 16 characters) and graphic (128x4 pixel) readout;
- * 16-keys touch panel for selection of testing parameters.
- * Readout of Rockwell, Vickers or Brinell scale, dwell time, etc.
- * Automatic estimate of Vickers & Brinell hardness value on the ground of diagonal/diameter measurement
- * Possibility of acquisition of Rockwell measurement for subsequent data processing;
- * Automatic approximate conversion of the measured value into a different hardness scales or into tensile strength;
- * Statistical parameters such as average value, standard deviation, max and min, values, etc.
- * Allows key-in parameters such as date, specimen and batch number, etc.
- * Centronics parallel interface to the printer;
- * RS232C serial interface to PC or Host Computer;
- * Special interface for output to PC by keyboard emulation: data are sent directly into Microsoft ® (as Word, Excel, etc) software package.



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